AF

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl. No. : 10/712,829

Appellants: LAMBERT et al.

Filed : November 12, 2003

Title : PROCESS FOR REMOVAL OF CATALYST RESIDUES FROM POLY-ALPHA-OLEFINS

TC/A.U. : 1764

Examiner : Boyer, R.

Docket No.: 0204-PA (UNI176US)

Mail Stop Appeal Brief - Patents
Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPELLANTS' REPLY BRIEF

Sir:

The above-identified Appellants submit this Appellants' Reply Brief pursuant to 37 C.F.R. § 41.41. The Examiner's Answer was mailed on September 21, 2007.

There is no additional fee for the Reply Brief. However, the U. S. Patent and Trademark Office is authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 23-2656.

The Appellants rely upon the following authorities and arguments to maintain the appeal.

1. Status of Claims

The status of the claims is as follows:

Claims 1 through 20 are pending in the application and are rejected and appealed. The procedural history behind this status of the claims is as follows:

Application No. 10/712,829 was filed on November 12, 2003. Claims 1 through 10 were originally filed.

In an Office Action dated November 21, 2006, claims 1 through 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Wettling et al. (US 2003/0162918) in view of Ishikawa et al. (U.S. Patent No. 3,567,795).

In a Response filed January 29, 2007, Appellants added new claims 11 through 20.

In an Office Action dated March 21, 2007, the Examiner made final the rejection of claims 1 through 20 under 35 U.S.C. § 103(a), as being unpatentable over Wettling et al. (US 2003/0162918) in view of Ishikawa et al. (U.S. Patent No. 3,567,795).

In a Response filed April 30, 2007, the Appellants maintained claims 1 through 20.

In an Advisory Action dated May 22, 2007, the Examiner stated that the Appellants' request for reconsideration had been considered, but did not place the application in condition for allowance.

Appellants filed a Notice of Appeal of the final rejection of claims 1 through 20 on June 6, 2007. Appellants filed their Appeal Brief on July 26, 2007, and the Examiner filed his answer on September 21, 2007.

2. Grounds of Rejection to Be Reviewed on Appeal

Are claims 1 through 20, 33 through 41, and 43 through 50 unpatentable under 35 U.S.C. § 103(a) as being obvious over Wettling et al. (U.S. 2003/0162918) in view of Ishikawa et al. (U.S. Patent No. 3,567,795)?

3. Argument

The Examiner has raised new arguments in his answer of September 21, 2007.

In the paragraph bridging pages 2 and 3, the Examiner has stated:

"The appellant's statement of the grounds of rejection to be reviewed on appeal is correct. However, Examiner notes that the Huang et al. (US 5,712,214) has been cited as evidence throughout prosecution of the application-at-issue. Therefore, the grounds of rejection is more properly stated as: claims 1 through 20 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Wettling et al. (US 2003/0162918) in view of Ishikawa et al. (US 3,567,795), as evidenced by Huang et al. (US 5,712, 214)."

In the third paragraph on page 4, the Examiner has stated:

"... Furthermore, it is known in the art that a stripping operation to remove halogen impurities can be enhanced by carrying out such operation at conditions of reduced pressure (see, e.g., Huang US 5712214, at column 5, lines 16-17). With regard to Applicant's limitation that the slurry be heated under reduced pressure "at a temperature of at least about

180°C for at least about thirty minutes," Examiner notes that Ishikawa discloses heating to a temperature of 100°C for thirty minutes (see Ishikawa, column 5, lines 16-18), while Huang discloses heating to a temperature of at least about 450°C (see Huang, column 5, lines 18-22). ..."

In the last paragraph on page 7, the Examiner has stated:

"However, Ishikawa discloses a process of eliminating an aluminum chloride polymerization catalyst from polymerization products whereby sodium silicate is brought into contact with a crude polymer solution and heated under conditions of reduced pressure so as to reduce the halogen content of such solution (see Ishikawa, column 5, lines 16-18). Furthermore, it is known in the art that a stripping operation to remove halogen impurities can be enhanced by carrying out such operation at conditions of reduced pressure (see, e.g., Huang, US 5712214, at column 5, lines 16-17). Finally, magnesium silicates, calcium silicates, and aluminum silicates are all art-recognized substitutes for aluminum oxide as an adsorbent. With regard to Applicant's limitation that the slurry be heated under reduced pressure "at a temperature of at least about 160°C," Examiner notes that Ishikawa discloses heating to a temperature of 100°C (see Ishikawa, column 5, lines 16-18), while Huang discloses heating to a temperature of at least about 450°C (see Huang. column 5, lines 18-22). ..."

The Examiner has made similar points on page 10, paragraph 2 and page 11, last paragraph.

Appellants respectfully submit that this Reply Brief is properly filed in order to afford them the opportunity to respond to the Examiner's comments with regard to Huang et al. (U. S. Patent No. 5,712,214).

Appealed claim 1 is directed to a method for reducing levels of residual halogen and Group IIIb metals in a crude poly(α-olefin) polymerized in the presence of a catalyst comprising the halogen and Group IIIb metals, wherein the method comprises:

A) washing the crude poly(α-olefin) with water;

B) separating the aqueous and organic phases;

C) then adding an adsorbent selected from the group consisting of magnesium silicates, calcium silicates, aluminum silicates, aluminum oxides, and clays to the organic phase to form a slurry;

D) heating the slurry under reduced pressure at a temperature of at least about 180° C for at least about thirty minutes; and then

E) separating the adsorbent from the slurry.

Huang et al. '214 discloses a low-pressure, high-temperature, wet post-treatment after oxyhalogenation during regeneration to improve activity and selectivity recovery of a regenerated catalyst that involves exposing a halogenated catalyst to a gaseous stream including water having a partial pressure of up to about 1.5 psia, oxygen having a partial pressure of less than about 4.5 psia, and an inert gas at a temperature within the range of about 450°C to about 530°C at a pressure within the range of about 14.7 psia to about 65 psia for a time sufficient to effect a hydrogen halide partial pressure in offgas from the

halogenated catalyst of less than about 0.004 psia to effectively remove excess halide from the halogenated catalyst.

The specific language cited by the Examiner in Huang et al. appears in column 5, lines 16-22:

> "Also, to promote and enhance the efficiency of chlorine evolution, it is important that the stripping step be done at as low a pressure as practicable. In most cases this is about atmospheric pressure, i.e., 14.7 psia; however, stripping can be enhanced by pulling vacuum on the reactors.
>
> It is also important to maintain a temperature of at least about 450°C., preferably within the range of about 450°C. to about 530°C., more preferably of about 480°C. to about 520°C., and most preferably at about 510°C., during stripping. However, stripping may be carried out at higher reactor pressure with reduced stripping efficiency and, therefore, requires a longer time of stripping."

The stripping step referred to is one in which a chlorine contaminant is removed from an oxyhalogenation catalyst comprising a binder, e.g., kaolin, alumina, silica, or zeolite, in combination with a Group VIII catalytic metal and, optionally, a Group VII B metal. There is no disclosure or suggestion of the presence of any Group IIIb metals or any crude poly(α-olefin) from which such Group IIIb metals should be removed. The present invention is not directed to a process for the regeneration of a contaminated catalyst, but, rather, to the separation of catalyst and excess halogen from a polymerized α-olefin wherein the catalyst

was employed to bring about the polymerization of the α-olefin. The present process and that disclosed by Huang et al. are in no way comparable. At most, the reference can be taken as showing that it is known in the art to carry out processes at elevated temperatures and reduced pressures. This cannot be denied, but such knowledge in the art falls far short of rendering all processes employing elevated temperatures and reduced pressures obvious to those skilled in the art and unpatentable.

Thus, as maintained in the Appeal Brief, the references cited by the Examiner, including Huang et al., fail to establish obviousness of the claimed invention. The cited references do not teach, and in fact teach away from the claimed invention.

Conclusion

The Appellants maintain that this file should be remanded to the Examiner for further prosecution or the rejections should be reversed, and favorable consideration of the application is respectfully requested.

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Date

for Reg. No. 30,754
James L. Lewis
Registration No. 24,732

LEVY & GRANDINETTI
1120 20th Street
South Tower
Suite 750
Washington, D.C. 20036
(202) 429-4560